

Environmental Assessment and Review Framework

April 2018

PAK: Proposed Multitranche Financing Facility Second Power Transmission Enhancement Investment Program

Prepared by National Transmission and Despatch Company Limited for the Asian Development Bank. This is an updated version of the draft originally posted in May 2016 available on <https://www.adb.org/projects/documents/pak-second-pteip-may-2016-earf>

**Environment Assessment and Review Framework (EARF)
For Pakistan Power Transmission Enhancement
Investment Program II**

Submitted to

ASIAN DEVELOPMENT BANK

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Submitted by

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(NTDC)
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ABBREVIATIONS

ADB	Asian Development Bank
BOD	Biochemical Oxygen Demand
DO	Dissolved Oxygen
DFO	Divisional Forest Officer
EPA	Environment Protection Agency
E&SIC	Environmental & Social Impact Cell
EA	Executing Agency
EARF	Environment Assessment & Review Framework
EC	Environmental Clearance
EIA	Environment Impact Assessment
EMP	Environmental Management Plan
GoP	Government of Pakistan
G/S	Grid Station
IA	Implementing Agency
LARP	Land Acquisition and Resettlement Plan
MPL	Maximum permissible level
MFF	Multi Tranche Financing Faculty
NEQS	National Environmental Quality Standards
NGO	Non-Governmental Organization
NTDC	National Transmission & Dispatch Company
PC	Public Consultation
PEPA	Pakistan Environment Protection Act, 1997
PSC	Project Supervision Consultant
PMU	Project Management Unit
PMC	Project Management Consultants
PIU	Project Implementation Unit
IEE	Initial Environmental Examination
REA	Rapid Environmental Assessment
SIA	Social Impact Assessment
SIEE	Summary Initial Environmental Examination
SP	Subproject
SPM	Suspended Particulate Matter
SPS	Safeguard Policy Statement
SR	Sensitive Receiver
T/L	Transmission Line
ToR	Terms of Reference
TSS	Total Suspended Solid

I. INTRODUCTION

1. Government of Pakistan (GoP) had requested the Asian Development Bank (ADB) for a Multi-tranche Financing Facility (MFF) to provide financial assistance for second power transmission enhancement investment program (PTEIP II) in the state of Pakistan. The PTEIP II will consist of staged physical investments in the high-voltage transmission system, including the rehabilitation, augmentation and expansion of transmission lines, substations and supporting infrastructure. The physical investments will increase transmission capacity to meet growing demand, improve reliability and system security, and evacuate additional sources of power. Nonphysical investments will increase institutional efficiency, cost recovery, competition, transparency, and good governance within the sector. National Transmission and Dispatch Company (NTDC) is the Executing Agency (EA) and Implementing Agency (IA) for MFF II, and subprojects under the tranches. The PTEIP II aims at achieving sustainable power transmission enhancement in Pakistan.
2. This Environmental Assessment and Review Framework (EARF) is applicable for subprojects under PTEIP II and Tranche-I, funded by ADB. The EARF outlines the policy, procedures, and institutional requirements for preparing the subprojects. These subprojects will be processed under ADB's new Safeguards Policy Statement, 2009 (SPS, 2009), which is also incorporated in this document. NTDC is responsible for preparing the required environmental assessments and obtaining ADB concurrence.
3. The EARF is endorsed by the GoP and provincial governments, and will be translated and disclosed on the NTDC websites.
4. The subprojects under MFF II will be prepared in a manner consistent with the government's strategy for development plan through investments for transmission networks enhancement program and substations under the supervision and coordination of the Executing Agency (EA), National Transmission and Dispatch Company (NTDC).

II. ASSESSMENT OF LEGAL FRAMEWORK AND INSTITUTIONAL CAPACITY

5. All subprojects undertaken as part of PTEIP II will be screened, classified and assessed based on ADB's Safeguard Policy Statement (SPS) 2009, and GoP's environmental legislation.

A. Environmental Legislation of Pakistan

6. Post the adoption of the 18th Constitutional Amendment in 2010, the subject of environment has been devolved and the provinces have been empowered for environmental protection and conservation. Subsequently the provinces have amended the Pakistan Environmental Protection Act (PEPA) 1997 to formulate provincial environmental protection acts. The Punjab government has amended PEPA 1997 as Punjab Environmental Protection Act 1997 (Amended 2012), and the Environment Protection Department (EPD) Punjab is responsible for ensuring the implementation of provisions of the Act in Punjab's territorial jurisdiction.
7. All development initiatives undertaken in Pakistan, according to the PEPA 1997 and provincial/state legislation are required to undergo an Initial Environmental Examination (IEE), or where the project is likely to cause significant adverse environmental impacts, an Environmental Impact Assessment (EIA). The environmental reports are filed with the relevant provincial Environmental

Protection Agencies (EPAs) for review and approval prior to project construction.

8. To facilitate the IEE/EIA preparation process the Federal Ministry of Climate Change has provided general policy/guidelines to guide and inform developers regarding the preparation of environmental assessment reports, environmental clearance of ADB is stipulated in the SPS 2009.
9. Pakistan's main legal and regulatory instruments include:
 - a) Pakistan Environmental Protection Act, 1997. Ministry of Environment, Government of Pakistan. Enacted 6 Dec 1997. It is currently applicable to the Islamabad Capital Territory, and the Federally Administered Tribal Areas (FATA).
 - b) Punjab Environmental Protection Act, 1997. Enacted through Punjab Environmental Protection (Amendment) Act, 2012. Notified on 18 Apr 2012.
 - c) Balochistan Environment Protection Act, 2012. Government of Balochistan. Enacted 15 Jan 2013.
 - d) Sindh Environmental Protection Act, 2014. Government of Sindh. Enacted 24 Feb 2014.
 - e) Khyber Pakhtunkhwa Environmental Protection Act, 2014. Government of Khyber Pakhtunkhwa. Enacted 11 Dec 2014.
 - f) Pakistan Environmental Protection Agency Review of Initial Environmental Examination and Environmental Impact Assessment Regulations, 2000. Notified 13 Jun 2000.
 - g) Pakistan Environmental Assessment Procedures, 1997. Pakistan Environmental Protection Agency, Government of Pakistan.
 - h) Guidelines for the Preparation and Review of Environmental Reports, 1997. Pakistan Environmental Protection Agency, Government of Pakistan.
 - i) Guidelines for Public Consultation, 1997. Pakistan Environmental Protection Agency, Government of Pakistan.
 - j) Guidelines for Sensitive and Critical Areas, 1997. Pakistan Environmental Protection Agency, Government of Pakistan.
 - k) National Environmental Quality Standards (NEQS) for industrial and municipal liquid effluents, industrial gaseous emissions, motor vehicle exhaust and noise, ambient air, drinking water quality and noise.

B. ADB's Safeguard Policy Statement (SPS) and other relevant policies

10. The goal of the ADB's Safeguard Policy Statement (SPS) is to promote the sustainability of project outcomes by protecting the environment and people from projects' potential adverse impacts. Among the objectives of ADB's safeguards are: (i) avoidance of adverse impacts of projects on the environment and affected people, where possible; (ii) minimizing, mitigating, and/or compensating for adverse project impacts on the environment and affected people when avoidance is not possible. 11. ADB's SPS sets out the policy objectives, scope and triggers, and principles for three key safeguard areas:
 - (i) environmental safeguards,
 - (ii) involuntary resettlement safeguards, and
 - (iii) Indigenous Peoples safeguards.

11. ADB Policy Principles are summarized in a table below:

	Policy principle	Summary
1	Screening and categorization	Initiate screening process early to determine the appropriate extent and type of environmental assessment.
2	Environmental assessment	Conduct an environmental assessment to identify potential impacts and risks in the context of the project's area of influence.
3	Alternatives	Examine alternatives to the project's location, design, technology, and components and their potential environmental and social impacts, including no project alternative.
4	Impact mitigation	Avoid, and where avoidance is not possible, minimize, mitigate, and/or offset adverse impacts and enhance positive impacts. Prepare an environmental management plan (EMP).
5	Public consultations	Carry out meaningful consultation with affected people and facilitate their informed participation. Involve stakeholders early in the project preparation process and ensure that their views and concerns are made known to and understood by decision makers and taken into account. Continue consultations with stakeholders throughout project implementation. Establish a grievance redress mechanism.
6	Disclosure of environmental assessment	Disclose a draft environmental assessment in a timely manner, in an accessible place and in a form and language(s) understandable to stakeholders. Disclose the final environmental assessment to stakeholders.
7	Environmental management plan	Implement the EMP and monitor its effectiveness. Document monitoring results, and disclose monitoring reports.
8	Biodiversity	Do not implement project activities in areas of critical habitats.
9	Pollution prevention	Apply pollution prevention and control technologies and practices consistent with international good practices. Adopt cleaner production processes and good energy efficiency practices. Avoid pollution, or, when avoidance is not possible, minimize or control the intensity or load of pollutant emissions and discharges. Avoid the use of hazardous materials subject to international bans or phaseouts.

10	Occupational health and safety. Community safety.	Provide workers with safe and healthy working conditions and prevent accidents, injuries, and disease. Establish preventive and emergency preparedness and response measures to avoid, and where avoidance is not possible, to minimize, adverse impacts and risks to the health and safety of local communities
11	Physical cultural resources	Conserve physical cultural resources and avoid destroying or damaging them. Provide for the use of “chance find” procedures.

12. ADB’s Public Communication Policy (2011) aims to enhance stakeholders’ trust in and ability to engage with ADB, and thereby increase the development impact of ADB operations. The policy promotes transparency, accountability, and participatory development. It establishes the disclosure requirements for documents ADB produces or requires to be produced.
13. ADB’s Accountability Mechanism Policy’s (2012) objectives is to provide an independent and effective forum for people adversely affected by ADB-assisted projects to voice their concerns and seek solutions to their problems, and to request compliance review of the alleged noncompliance by ADB with its operational policies and procedures that may have caused, or is likely to cause, them direct and material harm. The Accountability Mechanism a “last resort” mechanism.
14. A comparative analysis, based on a summary equivalence assessment which compared Pakistan’s legal and regulatory framework to the ADB Safeguard Policy (2009)¹, found that the law and regulations provide little detail on principles of environmental impact assessment, the environmental impact assessment procedures for preparation of environmental assessment reports, and requirements for implementation of environmental terms and conditions of approvals. This is left to the Guidelines for the Preparation and Review of Environmental Reports, 1997, Guidelines for Public Consultation, 1997; and Guidelines for Sensitive and Critical Areas, 1997. In addition, more technical guidance is provided in various sector guidelines.
15. The analysis found that the Pakistan Environmental Safeguards System has full equivalence with the Environment Safeguards of the ADB SPS with respect to (i) objective; (ii) scope and triggers; (iii) examination of alternatives; and (iv) disclosure of draft and final environmental assessment reports (including the environmental management plan). At the same time, partial equivalence was found with respect to (i) screening; (ii) conducting an environmental impact assessment, (iii) avoiding, minimizing, mitigating and/or offsetting adverse impacts, enhancing positive impacts, and preparing an environmental management plan; (iv) carrying out meaningful consultation; (v) implementing the environmental management plan and monitoring its effectiveness; (vi) prohibiting implementation of projects in areas of critical habitats; (vii) applying pollution prevention and control technologies; (viii) provision of occupational

¹ The analysis was conducted under TA 7548-REG: Improving the Implementation of Environmental Safeguards in Central and West Asia.

health and safety, and establishing preventative and emergency preparedness and response measures; and (ix) conserving physical cultural resources.

16. To meet the requirements for screening and categorization; preparation of environmental impact assessments; environmental planning and management, disclosure; consultation and participation, the Executing Agency and or Implementing Agency (EA/IA) will follow ADB SPS (2009) principles and requirements.

III. ANTICIPATED ENVIRONMENTAL IMPACTS

A Description of the Project

17. The proposed investment program is driven by the National Power Policy. NTDC's investment and power procurement program, as approved by the National Electric Power Regulatory Authority prior to the commencement of each year, forms the basis for the physical portion of the investment program. Specific projects to be selected based on their alignment with the investment and power procurement program, project readiness (including technical, economic, and financial feasibility), and compliance with ADB's safeguard requirements as in SPS 2009. The projects proposed and the scope of work for MFF II-Tranche-3 are presented as below:

List of Subprojects proposed for Tranche 3

Subproject	Technical Justification
Subproject 1: 500 kV Lahore North Grid Station with associated Transmission Line	
<p>500/220/132kV S/S with 4x750 MVA, 500/220kV, and 3x250 MVA 220/132 kV transformers Six 500 kV line bays, six 220kV line bays, and two 132kV line bays Extension at 500 kV of Gujranwala S/S of two 500 kV line bays 500 kV D/C T/L Lahore North -proposed Lahore HVDC switching/ converter station (105km) 500 kV D/C T/L Lahore North -existing Gujranwala S/S (45km) 220kV D/C T/L for in/out of 220 kV Ghazi Rd.-KSK S/C T/L (15km) 220kV D/C T/L for in/out of 220 kV Lahore-Ravi Rd. S/C T/L (14km) 220kV D/C T/L for in/out of 220 kV KSK-Ravi Rd. S/C T/L (15km) Transmission line construction equipment, washing units, live line, and dead line crew equipment Replacement with fog resistant insulators for existing transmission system at heavily polluted area Reconductoring with HTLS conductors for 220 kV New Kotlakhpat - Bund Road - Sheikhupura D/C T/L (44 km) Reconductoring with ACSR conductors for a part of 220kV Gatti - Bandala D/C T/L (5 km) Replacement of 3x37 MVAR shunt reactors at 500 kV Sheikhupura substation & 3x37 MVAR shunt reactors at 500 kV Gatti substation, and 2x22 MVAR shunt reactors at 500 kV Sheikhupura substation Replacement of 1x450MVA 500/220kV Transformer at Gatti 500 kV substation</p>	<p>The project is needed to meet the load demand in the Lahore north area at acceptable quality levels. In the absence of the project there will be substantial suppressed load and insufficient reliability to major load centers. In addition, the project will enable an alternate supply route for the North-South power transfers at 500 kV from the proposed new converter station at Lahore South to the substations at Gujranwala and Maira. At the expected project commissioning year 2023, the project benefits will include: (a) enabling a load of approximately 1100 MW representing 6300 GWh of energy which would otherwise be suppressed or poorly supplied, (b) the reduction of system losses by 60 MW (peak) amounting to a generation saving of 259 GWh p.a., and (c) the provision of N-1 reliability to a large section of the Lahore North load. The transmission line construction equipment and live line crew equipment are needed to enhance line construction work, including live line maintenance operations. The replacement with fog resistant insulators is needed to replace insulators which have been compromised by contamination with fog</p> <p>(a) Reconductoring with HTLS conductors for 220 kV New Kotlakhpat - Bund Road - Sheikhupura D/C T/L (44 km): The existing line is dilapidated and overloaded. Furthermore, the increasing load demand in the area requires larger power flows but new line construction is restricted by unavailability of access routes. These triple problems will be resolved by reconductoring the existing lines with HTLS conductors utilizing the exiting towers. Furthermore, the HTLS conductors have substantially lower losses than the equivalent ACSR conductors and lower system losses will be realized.</p>

<p>Replacement of existing electro-mechanical protection relays with numerical relays for Islamabad, Lahore & Multan regions</p>	<p>(b) Reconductoring with ASCR conductors for a part of 220kV Gatti - Bandala D/C T/L (5 km): The reconductoring of the conductors is primarily necessitated by the poor technical condition of the line (31km). This is an important line in the network and need to be maintained in service.</p> <p>(c) Replacement of 37 MVAR shunt reactors at Sheikhpura & Gatti 500 kV substations, and 22MVAR shunt reactors at Sheikhpura 500 kV substation: The existing shunt reactors are damaged and do not work as designed. Replacing the damaged shunt reactors with the new one is expected to reduce outage triggered by the over voltage, improving the reliability.</p> <p>(d) Replacement of 1x450 MVA 500/220kV transformer at Gatti 500 kV substation: The recent inspection result shows the transformer's condition is at risk of possible explosion due to deteriorated insulation after over 40-year operation. The replacement is needed for both safety considerations and widespread outage (450MW) if the transformer is taken out of service..</p> <p>(e) Replacement of electro-mechanical relays with digital numerical relays in Islamabad, Lahore & Multan regions: The existing electro-mechanical relays are outdated and provide limited information when outage happen. Digital numerical relays are needed to improve outage response and system performance.</p>
<p>Subproject 2: 500kV Maira Switching Station</p>	
<p>Eight 500 kV line bays with four shunt reactor banks.</p>	<p>This switching station is an integral part of the overall evacuation arrangement of the hydro power plants: 870 MW Suki Kinari, 1100MW Kohala and 640MW Mahal. The arrangement and location of the switching station has been selected on the basis of an Interconnection Study carried out by NTC's consultants. The project may be considered as an essential part of the least cost arrangement for the evacuation of the power from the above three hydro stations. The shunt reactors are needed for voltage control of the network at light load conditions.</p>
<p>Subproject 3: 220kV Jauharabad Substation with associated transmission line</p>	
<p>220kV S/S at Jauharabad with 3x160 MVA 220/132kV transformers along with allied equipment and accessories Four 220kV line bays and eight 132kV line bays Two 220kV D/C T/L of twin bundle Rail conductor for looping In/Out of existing Ludewala – Chashnupp D/C T/L at 220kV Jauharabad (12km)</p>	<p>The project is needed to meet the future load demand in the Jauharabad, Quaidabad, Nowshera and Adi Kot areas at acceptable quality levels. In the absence of the project some loads in future years will need to be suppressed load and major load centers will have poor reliability of supply. At the at the expected project commissioning year 2023, the project benefits will include: (a) enabling a load of approximately 32 MW representing 139 GWh of energy which would otherwise be suppressed or poorly supplied, (b) the reduction of system losses by 15.5 MW (peak) amounting to a generation saving of 44.3 GWh p.a., and (c) the provision of N-1 reliability to a large section of area loads.</p>
<p>Subproject 4: Grid Connected Battery Energy Storage System Pilot Project</p>	
<p>Lithium-ion Battery Packs (5 MWh) Balance of system including inverters (20MW) Transformers (220kV/33kV, 30MVA 1unit and 33kV/0.44kV, 5MVA 6 units)</p>	<p>A 20 MW/5MWh battery energy storage system at the proposed location of the Jhimpir-1 substation would provide two major benefits – network stability support (by voltage</p>

B Environmental Impacts

18. The adverse environmental impacts associated with the construction of substations, grid stations and transmission lines mostly occur during the construction phase. However, since most of the land for substations and grid stations is already under the possession of NTDC, no significant impact is anticipated on biodiversity or physical cultural resources. Other important environmental problems, which need to be carefully addressed, are the disposal of waste materials from earth works and restoration of sites to their original condition after completion of the construction works. It is important that the contractor should prepare a plan for disposing waste materials, which should not allow disposal in the forest areas, nearby water bodies and agriculture land without adequate protection. It is also expected that the contractor will adopt safe construction practices and ensure use of requisite personnel protective equipment to protect occupational health of labor and nearby community. Although the environmental impacts related with the project are site-specific, monitoring the implementation of the mitigation measures and monitoring of the environmental conditions should be done systematically so that any unexpected environmental impacts could be properly mitigated in a timely manner.
19. Given the nature and magnitude of the proposed power transmission subproject along with existing environmental conditions, impacts are expected to be site-specific and could be readily mitigated. Augmentation/extension of transformers in existing Grid Station (G/S) are expected to cause only very minor impacts during site works which could be easily mitigated. Earth works, dust emission and dust generation will be minimal during tower installation since excavation will be covering a small area of a few square meters per excavation.
20. Environmental impacts of subprojects will involve construction activities, the size, type and scope of which will be different. The pre-construction and construction related impacts are:
 - i. Removal of vegetation/trees
 - ii. Dust from construction activity
 - iii. Air emissions from construction equipment and vehicles
 - iv. Noise from construction vehicles and heavy equipment
 - v. Sediment run-off from construction sites
 - vi. Disposal of spoils and waste materials
21. These are considered as possible impacts and will need to be addressed through carefully designed mitigation measures.

IV. ENVIRONMENTAL ASSESSMENT FOR SUBPROJECTS

22. All subprojects will be subject to the environmental assessment process. This is a process of environmental analysis and planning to address the environmental impacts and risks associated with a project. PTEIP MFF 2 Tranches 1-3 have been categorized as B for environment, which requires conducting an Initial Environmental Examination (IEE). However, if a future

subproject categorized A a full-scale environmental impact assessment (EIA) will be required.

23. The following general criteria will be adopted for selection of the subprojects for the MFF:

- (i) The subprojects shall only be selected from NTDC priority roads list;
- (ii) The subprojects shall only involve activities that follow all the government regulations;
- (iii) Subprojects including activities listed in ADB's Prohibited Investment Activities List (ADB SPS's Appendix 5) do not qualify for ADB's financing;
- (iv) Subprojects which have not prepared an EIA or an IEE in accordance with this EARF and Safeguard Requirements 1 of SPS 2009, identified all the key potential environmental and social impacts and risks, and incorporated effective measures to avoid, minimize, mitigate or compensate for the adverse impacts into an EMP and project design do not qualify for ADB's financing.
- (v) Subprojects that are deemed highly complex and sensitive in accordance with SPS do not qualify for ADB's financing.

24. A final check on conformity with the selection criteria will be the submission of selected subprojects for ADB's clearance. Any subproject, which does not meet the general criteria listed above may be rejected.

25. Potential adverse environmental impacts of future subprojects can be avoided or minimized through carefully selecting the subproject location, design, and route. All subprojects will be screened for likely impacts using ADB's REA Checklist. The subprojects should:

- (i) not disturb any cultural heritage areas designated by the government or international agencies, such as UNESCO, and shall avoid any monuments of cultural or historical importance;
- (ii) not be located within or near the biodiversity core zone of any protected areas such as national parks, nature reserves, or wildlife sanctuaries;
- (iii) avoid clearing of any existing forest resources, and if unavoidable, clearing will be minimized and compensatory planting included in the environmental management plan and budget for each subproject.

A. Requirements for Environmental Screening and Classification

26. All subprojects will be screened to determine their environmental category based on the ADB's Rapid Environmental Assessment (REA) Checklist for Power Transmission and Substation projects. A template of the REA Checklist is given in Annex I. Categorization is to be based on the most environmentally sensitive component, which implies that if any one component of a subproject has potential of significant adverse environmental impacts, then the project is to be classified as Category A regardless of potential environmental impacts of other aspects of the project. In general, a project will be classified as 'Category A' if the project is likely to have significant environmental impact that is:

- irreversible,
- diverse, or

- unprecedented.
27. As a rule, those subprojects with potentially high impacts are located in ecologically sensitive area, such as buffer or core zone of any designated specially protected areas, or area of international significance (such as Ramsar site) or cultural heritage and archeological sites.
 28. Other subprojects that do not fall into the above category are typically classified as Category B or C depending upon the scale of impacts.

B. Requirements for Environmental Assessments and Environmental Management Plans

29. Category A subprojects will require an Environmental Impact Assessment (EIA) to be conducted, while Category B subprojects require an Initial Environmental Examination (IEE) to be conducted. The EIA and IEE reports should include an Environmental Management Plan (EMP) along with its implementation budget. For Category C subprojects no EIA or IEE is required, although environmental implications are still reviewed. The guideline for the preparation of environmental assessment report is attached as Annex II.
30. Impacts and risks will be analyzed in the context of each subproject's area that encompasses:
 - i. the primary subproject site(s) and related facilities;
 - ii. associated facilities that are not funded as part of the subproject, and whose viability and existence depend exclusively on the subproject and whose goods or services are essential for successful operation of the subproject; and
 - iii. areas and communities potentially affected by impacts from unplanned but predictable developments caused by the subproject that may occur later or at a different location.
31. Environmental impacts and risks will also be analyzed for all relevant stages of the project cycle, including preconstruction, construction, operations, decommissioning, and post-closure activities such as rehabilitation or restoration.
32. The IA will prepare an Environmental Management Plan (EMP) that addresses the potential impacts and risks identified by the environmental assessment. The EMP will include the proposed mitigation measures, environmental monitoring and reporting requirements, emergency response procedures, related institutional or organizational arrangements, capacity development and training measures, implementation schedule, cost estimates, and performance indicators.
33. The IA should ensure that ADB be given access to undertake environmental due diligence for all subprojects. However, the IA has the main responsibility for undertaking environmental due diligence and monitoring the implementation of environmental mitigation measures for all subprojects. The due diligence report as well as monitoring reports on implementation of the environmental management plan needs to be documented systematically and be available to the public.

V. CONSULTATION, INFORMATION DISCLOSURE AND GRIEVANCE REDRESS MECHANISM

A. Public Consultation

34. The borrower/Client will carry out meaningful consultation with affected people and other concerned stakeholders, including civil society, and facilitate their informed participation. According to ADB's SPS 2009, public consultation is mandatory as part of environmental assessment of Category A and Category B projects. Consultation will be based on the following principles:
- i). Early start in the individual project preparation stage and continuation throughout the project cycle;
 - ii). Timely disclosure of relevant information in a comprehensible and readily accessible to affected people format;
 - iii). Ensuring the absence of intimidation or coercion during public consultation;
 - iv). Gender inclusive and responsive with focus on disadvantaged and vulnerable groups, and
 - v). Enabling the integration of all relevant views of affected people and stakeholders into decision-making.

B. Information Disclosure

35. Overall responsibility for ensuring that the environmental requirements of the Project set forth in ADB's Safeguard Policy Statement 2009, PEPA 1997 and provincial environmental legislation lies with the IA implementing the projects.
- All environmental documents are subject to public disclosure, and are therefore to be made available to public;
 - All environmental assessment documentation for Category B subprojects (IEEs) will be posted on the ADB website;
 - Under the SPS (2009), If any Category A subprojects are identified, the first working Draft EIA is to be prepared, and posted on the ADB website 120 days before board approval.
 - All IEE/EIAs have to be reviewed by ADB before being disclosed to the public; and,
 - The Government will ensure that meaningful public consultations are undertaken during the assessment process for the subprojects.

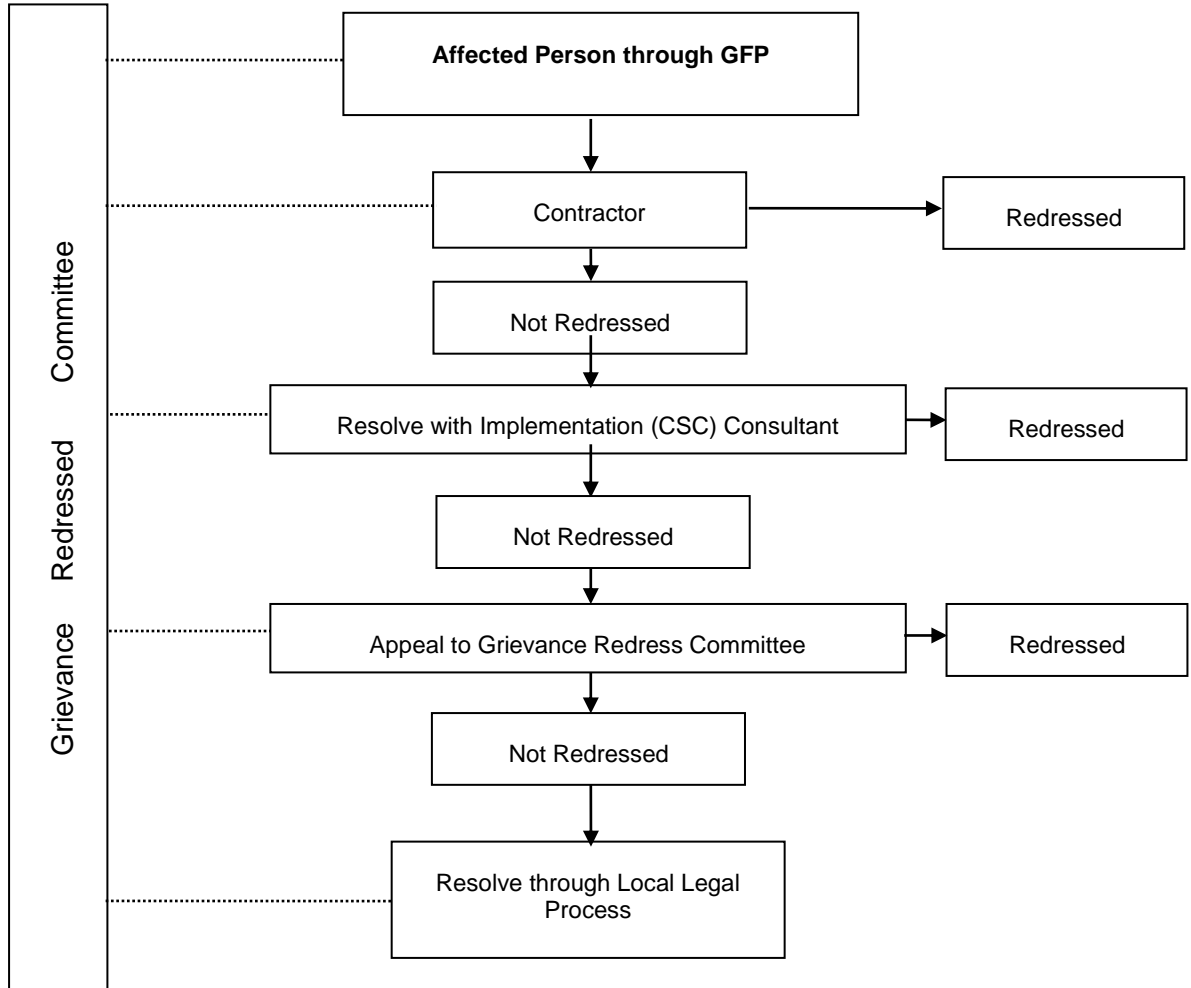
C. Grievance Redress Mechanism

36. The Executing Agency will establish a mechanism to receive and facilitate the resolution of affected peoples' concerns, complaints, and grievances about the project's environmental performance. The Executing Agency at site will be the Project Implementation Unit (PIU). The PIU will overall be responsible for executing the work at site. The Executive Engineer/Resident engineer will be in charge of the project. The Executive Engineer will be supported with Sub Divisional Officers and other supporting staff.
37. The GRM will be established at each project location as described below:
38. Prior to the contractor's mobilization to the project site NTDC's Environment and Social Impact Cell (E&SIC) will assist the affected communities to establish a Grievance Redress Committee (GRC) and identify local representatives to act as Grievance Focal Points (GFP) for that community. The Grievance Redress Committee (GRC) will comprise of:

- (i) Executive Engineer (NTDC) for the project;
 - (ii) Representative of E&SIC (Assistant Manager (Environment));
 - (iii) Environment Specialist CSC;
 - (iv) Representative of Contractor; and
 - (v) GFP of relevant community.
39. The function of the GRC is to address the project related grievances of the affected parties that are unable to be resolved satisfactorily through the initial stages of the GRM procedure.
40. The Grievance Focal Points (GFPs) are designated personnel from within the community who will be responsible for: i) acting as community representatives in formal meetings between the project team (contractor, CSC, Assistant Manager (Environment), E&SIC and the local community he/she represents and ii) communicating community members' grievances and concerns to the contractor during project implementation. The number of GFPs to be identified for each project will depend on the number and distribution of affected communities.
- (i) A pre-mobilization public consultation meeting will be convened by E&SIC and attended by GFPs, contractor, CSC, E&SIC representatives and other interested parties (e.g. District level representatives, NGOs). The objectives of the meeting will be as follows: Introduction of key personnel of each stakeholder including roles and responsibilities,
 - (ii) Presentation of project information of immediate concern to the communities by the contractor (timing and location of specific construction activities, design issues, access constraints etc.) This will include a brief summary of the EMP - its purpose and implementation arrangements;
 - (iii) Establishment and clarification of the GRM to be implemented during project implementation including routine (proactive) public relations activities proposed by the project team (contractor, CSC, E&SIC) to ensure communities are continually advised of project progress and associated constraints throughout project implementation;
 - (iv) Identification of members of the Grievance Redress Committee (GRC)
 - (v) Elicit and address the immediate concerns of the community based on information provided above.
41. Following the pre-mobilization public consultation meeting, environmental complaints associated with the construction activity will be routinely handled through the GRM as explained below and shown schematically in Figure 1:
- (i) Individuals will lodge their environmental complaint/grievance with their respective community's nominated GFP.
 - (ii) The GFP will bring the individual's complaint to the attention of the Contractor.
 - (iii) The Contractor will record the complaint in the onsite Environmental Complaints Register (ECR) in the presence of the GFP.
 - (iv) The GFP will discuss the complaint with the Contractor and have it resolved;

- (v) If the Contractor does not resolve the complaint within one week, then the GFP will bring the complaint to the attention of the CSC's Environmental Specialist. The SC's Environment Specialist will then be responsible for coordinating with the Contractor in solving the issue.
- (vi) If the Complaint is not resolved within 2 weeks the GFP will present the complaint to the Grievance Redress Committee (GRC).
- (vii) The GRC will have to resolve the complaint within a period of 2 weeks and the resolved complaint will have to be communicated back to the community. The Contractor will then record the complaint as resolved and closed in the Environmental Complaints Register.
- (viii) Should the complaint not be resolved through the GRC, the issue will be adjudicated through local legal processes.
- (ix) In parallel to the ECR placed with the Contractor, each GFP will maintain a record of the complaints received and will follow up on their rapid resolution.
- (x) E&SIC will also keep track of the status of all complaints through the Monthly Environmental Monitoring Report submitted by the Contractor to the SC and will ensure that they are resolved in a timely manner.

Figure 1: Grievance Redress Mechanism



VI. INSTITUTIONAL ARRANGEMENT AND RESPONSIBILITIES

42. The Implementing Agency (IA) for the project is the National Transmission and Despatch Company (NTDC). A Project Management Unit (PMU) has been established, which contains an Environment and Social Impacts Cell (E&SIC). The E&SIC is staffed by 1 Manager (Env. and Social Safeguards), 1 Deputy Manager (Env.) and 1 Assistant Manager (Env.) in addition to social safeguard staff. Further resources for env. safeguards management will be provided by Consultants as appropriate and required.
43. The E&SIC within the PMU, with the assistance of Consultants, will be responsible for:
- Appointing an environment specialist to monitor the implementation of environmental management measures required for each subproject.
 - Preparing environmental screening checklists and classifying subprojects that have not been yet classified.
 - Based on the checklist and as per the requirements of ADB SPS (2009), PEPA 1997 and relevant provincial Environmental Protection Acts, preparing IEEs and EMPs.
 - Submitting the checklists and IEE reports to ADB as part of the approval of subproject.
 - Ensuring that EMPs are included in Tender documents.
 - Ensuring that all regulatory clearances are obtained before starting civil works for the subproject.
 - Ensuring that the EMPs, including all proposed mitigation measures and monitoring programs are properly implemented.
 - Undertaking monitoring of subprojects and preparing environmental monitoring reports every six, to be delivered to ADB.
 - In the case of unpredicted environmental impacts occurring during project implementation, preparing and implementing a Corrective Action Plan (CAP).
 - In the case that a Category B subproject needs to have its siting or alignment changed or its environmental classification reconfirmed, reviewing it to determine whether a supplementary study is required. If so, carry out the study and implement any amendments to the original EMP.
 - Preparing a project specific EMP for the operations that includes a Site Specific EMP for each of the work areas.
 - Providing awareness training in environmental management for all employees working on the subproject.
 - Ensuring that meaningful public consultations (including both men and women) are undertaken with affected groups and local NGOs. The list of people attending the consultation, time and locations, subjects discussed during consultation will be recorded in a systematic manner.

- Sharing information and disclosure of environmental safeguard documents (including any Corrective Action Plans prepared in cases of change to original project design) as required.

44. ADB will take the following responsibilities:

- Review project IEEs as a basis for the approval of subprojects.
- Publicly disclose the final IEE before project appraisal, a new or updated IEE and corrective action plan prepared during project implementation, if any, as well as environmental monitoring reports on the ADB website.
- Monitor the implementation of the EMP and due diligence as part of overall project review mission.
- Provide assistance to the EA/IA, if required, in carrying out its responsibilities and safeguard capacity building.

VII. MONITORING AND REPORTING

45. Implementation of the EMP during construction will be done by the contractors and supervised by supervisory consultant and E&SIC. The parameters to be monitored, frequency and duration of monitoring as well as the locations to be monitored will be as per the monitoring plan prepared as part of the EMP. The PIU and contractors will report the results and conclusions of EMP implementation and environmental monitoring to the PMU quarterly. The PMU will consolidate such reports and submit Bi-annual Environmental Monitoring reports to ADB on prescribed template (attached as Annex IV). A section on environment will also be included in the quarterly monitoring reports submitted to ADB. The budget for environmental monitoring shall be included as part of civil works contracts.

46. Environmental assessment will include environmental monitoring plans identifying environmental monitoring activities to ensure that negative environmental impacts are addressed properly. It will identify environmental parameters to be monitored, frequency of monitoring, applicable standards, agencies and institutions responsible for monitoring; and provide indicative monitoring costs. The Project Management Consultants will assist the PMU in this regard. During construction monitoring will be undertaken by contractors. PIUs will monitor contractor's environmental performance. During the operation stage, monitoring will be the responsibility of the EA or the respective IAs. ADB will categorize each tranche of the proposed MFF based on the subprojects.

47. ADB will require the EA through its PMU to:

- i. Establish and maintain procedures to monitor the progress of implementation of EMPs;
- ii. Verify the compliance with environmental measures and their progress toward intended outcomes;
- iii. Document and disclose monitoring results and identify necessary corrective and preventive actions in the periodic monitoring reports;
- iv. Follow up on these actions to ensure progress toward the desired outcomes,
- v. Use independent consultant (external monitor) to monitor project implementation for highly complex and sensitive projects; and

- vi. Submit periodic monitoring reports on environmental safeguard measures as agreed with ADB.
48. During review missions, ADB will assess environmental compliance with environmental requirements. ADB will monitor projects on an ongoing basis until a project completion report is issued. ADB will carry out the following monitoring actions to supervise project implementation:
- i. Conduct periodic site visits for projects with adverse environmental or social impacts;
 - ii. Conduct supervision missions with detailed review by ADB's safeguard specialists/officers or consultants for projects with significant adverse social or environmental impacts;
 - iii. Review the periodic monitoring reports submitted by borrowers/clients to ensure that adverse impacts and risks are mitigated as planned and as agreed with ADB;
 - iv. Work with the IA to rectify to the extent possible failures to comply with their safeguard commitments, as covenanted in the legal agreements;
 - v. Exercise remedies to re-establish compliance as appropriate; and
 - vi. Prepare a project completion report that assesses whether the objective and desired outcomes of the safeguard plans have been achieved, taking into account the baseline conditions and the results of monitoring.
49. The mitigation measures identified through IEE/EIA are incorporated into the project cycle. Mitigation measures, which are implemented by the Contractor, shall form part of the Contract Documents. The other mitigation measures are undertaken by the PMU (itself or in assistance with Project Consultants) as specified in the IEE/EIA.
50. As per SPS the borrower is required to engage external monitor to verify its monitoring information for projects likely to have significant adverse environmental impacts (category A projects)

TABLE: MINIMUM PROVISIONS FOR ENVIRONMENTAL MONITORING

Project Stage	Mitigation Measure	Parameters to be Monitored	Location	Measurements	Frequency	Responsibility	Cost
Pre-Construction	Route survey to define alternative alignments	Possible encroachment on reserved forests	All transmission and Substation and transmission line sites	Field mapping with Global Positioning System (GPS) Equipment preferable	1-time survey to finalize design	NTDC / PIU through route survey contractor	n/a
Construction	Dust, equipment emissions, erosion, and noise control Waste management	Incorporation of appropriate clauses in construction contracts	All construction contracts for all substation and transmission line sites	Field inspections to ensure that appropriate measures are implemented and facilities are installed	Quarterly	NTDC and PMU to include in bidding documents. ADB to verify through review of bidding documents.	Included in construction contract (estimated at < 0.5% of total contract value)
	Noise, Dust, equipment emissions, and erosion control Waste Management	Suspended particulate matter (SPM) Noise Water: pH, dissolved oxygen (DO), biochemical oxygen demand (BOD), total suspended solids (TSS), hydrocarbon	All substation sites and selected transmission lines	“Grab” samples for air and water Spot check for noise using portable monitoring device Spot check for solid waste generation and disposal	Every 6 months, beginning with initial activity, for total of 24 Months Monitoring will be extended if	Contractors to implement, PMU staff to provide oversight via regular field inspections; ADB to audit during project review missions NTDC has responsibility for s	Cost to be included in contract documents

		and PCBs Solid waste generation and disposal			Necessary Spot checks for solid waste activities	solid waste management	
Operations and Maintenance	Dust, equipment emissions, and erosion control Waste management	Same parameters as during construction period	All substations And transmission lines	Spot checks based on visual inspections and any complaints	As necessary based on inspections and complaints	NTDC through PMU ADB to audit during project review missions	Cost to be included in contract documents

ANNEXURES

**ANNEX-I RAPID ENVIRONMENTAL ASSESSMENT (REA) CHECKLIST FOR
POWER TRANSMISSION AND SUBSTATION SUBPROJECT**

Instructions:

- (i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.
- (ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.
- (iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title:

Sector Division:

Power Transmission

Screening Questions	Yes	No	Remarks
A. Project Siting Is the Project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site			
▪ Protected Area			
▪ Wetland			
▪ Mangrove			
▪ Estuarine			

Screening Questions	Yes	No	Remarks
<ul style="list-style-type: none"> ▪ Buffer zone of protected area 			
<ul style="list-style-type: none"> ▪ Special area for protecting biodiversity 			
<ul style="list-style-type: none"> ▪ B. Potential Environmental Impacts ▪ Will the Project cause... 			
<ul style="list-style-type: none"> ▪ encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation? 			
<ul style="list-style-type: none"> ▪ encroachment on precious ecosystem (e.g. sensitive or protected areas)? 			
<ul style="list-style-type: none"> ▪ alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site? 			
<ul style="list-style-type: none"> ▪ damage to sensitive coastal/marine habitats by construction of submarine cables? 			
<ul style="list-style-type: none"> ▪ deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction? 			
<ul style="list-style-type: none"> ▪ increased local air pollution due to rock crushing, cutting and filling? 			
<ul style="list-style-type: none"> ▪ risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation? 			
<ul style="list-style-type: none"> ▪ chemical pollution resulting from chemical clearing of vegetation for construction site? 			
<ul style="list-style-type: none"> ▪ noise and vibration due to blasting and other civil works? 			
<ul style="list-style-type: none"> ▪ dislocation or involuntary resettlement of people? 			

Screening Questions	Yes	No	Remarks
<ul style="list-style-type: none"> ▪ disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups? 			
<ul style="list-style-type: none"> ▪ social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads? 			
<ul style="list-style-type: none"> ▪ hazardous driving conditions where construction interferes with pre-existing roads? 			
<ul style="list-style-type: none"> ▪ creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents? 			
<ul style="list-style-type: none"> ▪ dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines? 			
<ul style="list-style-type: none"> ▪ environmental disturbances associated with the maintenance of lines (e.g. routine control of vegetative height under the lines)? 			
<ul style="list-style-type: none"> ▪ facilitation of access to protected areas in case corridors traverse protected areas? 			
<ul style="list-style-type: none"> ▪ disturbances (e.g. noise and chemical pollutants) if herbicides are used to control vegetative height? 			
<ul style="list-style-type: none"> ▪ large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)? 			
<ul style="list-style-type: none"> ▪ social conflicts if workers from other regions or countries are hired? 			
<ul style="list-style-type: none"> ▪ poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations? 			

Screening Questions	Yes	No	Remarks
<ul style="list-style-type: none"> ▪ risks to community safety associated with maintenance of lines and related facilities? 			
<ul style="list-style-type: none"> ▪ community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization? 			
<ul style="list-style-type: none"> ▪ risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation? 			
<ul style="list-style-type: none"> ▪ community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning? 			

ANNEX-II OUTLINE OF AN ENVIRONMENTAL IMPACT ASSESSMENT REPORT

This outline is part of the Safeguard Requirements 1. An environmental assessment report is required for all environment category A and B projects. Its level of detail and comprehensiveness is commensurate with the significance of potential environmental impacts and risks. A typical EIA report contains the following major elements, and an IEE may have a narrower scope depending on the nature of the project. The substantive aspects of this outline will guide the preparation of environmental impact assessment reports, although not necessarily in the order shown.

A. Executive Summary

This section describes concisely the critical facts, significant findings, and recommended actions.

B. Policy, Legal, and Administrative Framework

This section discusses the national and local legal and institutional framework within which the environmental assessment is carried out. It also identifies project-relevant international environmental agreements to which the country is a party.

C. Description of the Project

This section describes the proposed project; its major components; and its geographic, ecological, social, and temporal context, including any associated facility required by and for the project (for example, access roads, power plants, water supply, quarries and borrow pits, and spoil disposal). It normally includes drawings and maps showing the project's layout and components, the project site, and the project's area of influence.

D. Description of the Environment (Baseline Data)

This section describes relevant physical, biological, and socioeconomic conditions within the study area. It also looks at current and proposed development activities within the project's area of influence, including those not directly connected to the project. It indicates the accuracy, reliability, and sources of the data.

E. Anticipated Environmental Impacts and Mitigation Measures

This section predicts and assesses the project's likely positive and negative direct and indirect impacts to physical, biological, socioeconomic (including occupational health and safety, community health and safety, vulnerable groups and gender issues, and impacts on livelihoods through environmental media [Appendix 2, para. 6]), and physical cultural resources in the project's area of

influence, in quantitative terms to the extent possible; identifies mitigation measures and any residual negative impacts that cannot be mitigated; explores opportunities for enhancement; identifies and estimates the extent and quality of available data, key data gaps, and uncertainties associated with predictions and specifies topics that do not require further attention; and examines global, trans boundary, and cumulative impacts as appropriate.

F. Analysis of Alternatives

This section examines alternatives to the proposed project site, technology, design, and operation—including the no project alternative—in terms of their potential environmental impacts; the feasibility of mitigating these impacts; their capital and recurrent costs; their suitability under local conditions; and their institutional, training, and monitoring requirements. It also states the basis for selecting the particular project design proposed and, justifies recommended emission levels and approaches to pollution prevention and abatement.

G. Information Disclosure, Consultation, and Participation

This section:

- (i) describes the process undertaken during project design and preparation for engaging stakeholders, including information disclosure and consultation with affected people and other stakeholders;
- (ii) summarizes comments and concerns received from affected people and other stakeholders and how these comments have been addressed in project design and mitigation measures, with special attention paid to the needs and concerns of vulnerable groups, including women, the poor, and Indigenous Peoples; and
- (iii) describes the planned information disclosure measures (including the type of information to be disseminated and the method of dissemination) and the process for carrying out consultation with affected people and facilitating their participation during project implementation.

H. Grievance Redress Mechanism

This section describes the grievance redress framework (both informal and formal channels), setting out the time frame and mechanisms for resolving complaints about environmental performance.

I. Environmental Management Plan

This section deals with the set of mitigation and management measures to be taken during project implementation to avoid, reduce, mitigate, or compensate for adverse environmental impacts (in

that order of priority). It may include multiple management plans and actions. It includes the following key components (with the level of detail commensurate with the project's impacts and risks):

i. Mitigation:

- (a) identifies and summarizes anticipated significant adverse environmental impacts and risks;
- (b) describes each mitigation measure with technical details, including the type of impact to which it relates and the conditions under which it is required (for instance, continuously or in the event of contingencies), together with designs, equipment descriptions, and operating procedures, as appropriate; and
- (c) provides links to any other mitigation plans (for example, for involuntary resettlement, Indigenous Peoples, or emergency response) required for the project.

ii. Monitoring:

- (a) describes monitoring measures with technical details, including parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits and definition of thresholds that will signal the need for corrective actions;
- (b) describes monitoring and reporting procedures to ensure early detection of conditions that necessitate particular mitigation measures and document the progress and results of mitigation.

iii. Implementation arrangements:

- (a) specifies the implementation schedule showing phasing and coordination with overall project implementation;
- (b) describes institutional or organizational arrangements, namely, who is responsible for carrying out the mitigation and monitoring measures, which may include one or more of the following additional topics to strengthen environmental management capability: technical assistance programs, training programs, procurement of equipment and supplies related to environmental management and monitoring, and organizational changes; and
- (c) estimates capital and recurrent costs and describes sources of funds for implementing the environmental management plan.
- (d) Performance indicators: describes the desired outcomes as measurable events to the extent possible, such as performance indicators, targets, or acceptance criteria that can be tracked over defined time periods.

J. Conclusion and Recommendation

This section provides the conclusions drawn from the assessment and provides recommendations.

Semi-annual Environmental Monitoring Report

ANNEX - III TEMPLATE FOR BI-ANNUAL ENVIRONMENTAL MONITORING REPORT

Project Number: {XXXXXX}

{Reporting period: Month Year}

{Full Country Name}: {Project Title}

{(Financed by the <source of funding>)}

Prepared by {author(s)}

{Firm name}

{City, country}

For {Executing agency}

{Implementing agency}

Endorsed by: (staff name of IA/PIU) and signature, submission date

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[Subject]

[Title]

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Photographs (with date printed)

Monitoring data

Etc..

[Subject]

[Title]

Abbreviations

Include list of abbreviations used in the report

[Subject]

[Title]

1 introduction

1.1 Preamble

1. This report represents the Semi - Annual Environmental Monitoring Review (SAEMR) for INSERT PROJECT NAME.
2. This report is the (insert number of report, i.e. 1st, 2nd etc) EMR for the project.

1.2 Headline Information

3. Include a brief summary of significant outcomes of the project construction process and any specific areas of concern of which ADB should be informed.

[Subject]

[Title]

2 project description and current activities

2.1 Project Description

4. Provide a brief description of the project. – this should not vary from one report to the next.

2.2 Project Contracts and Management

5. Provide a list or table of main organisations involved in the project and relating to Environmental Safeguards. This should include lender, borrower, PIU, Main Contractor/s and significant sub-contractors, environmental staff of various organisations should be named, and contact details provided.

6. Provide a description of how the contracts are being managed and names of key personnel.

2.3 Project Activities During Current Reporting Period

7. Provide an outline of major activities which have been carried out during the current reporting period. Provide adequate information so the reader can understand what has been taking place on site. Include photographs (with date stamp) of activities where possible and relevant. Place bulk photographs into an annex to the main report or a separate photographic record.

8. Where multiple work sites are involved provide information on which work sites have been active during the current reporting period. Provide map of work site areas if relevant.

9. Provide details (chart) of worker numbers (maximum, Minimum) in the current reporting period and anticipated changes in staff in following period

10. Highlight any significant new activities commenced during the current reporting period.

11. For the above make maximum use of charts, images and tables.

2.4 Description of Any Changes to Project Design

12. Describe any changes to the project design from that which was assessed in the Impact Assessment phase of the project and is set out in the Initial Environmental Examination/Environmental Impact Assessment. If none have taken place, please state – No changes.

[Subject]

[Title]

-
13. Note if significant changes have occurred the PIU should have already informed ADB of this and made a decision on the need for updates to the EIA/IEE and/or Environmental Management Plans

2.5 Description of Any Changes to Agreed Construction methods

14. Provide a description and reason for changes to any construction processes, for example, blasting of rock rather than excavation, open channel rather than thrust boring at road crossings.

[Subject]

[Title]

3 Environmental Safeguard activities

3.1 General Description of Environmental Safeguard Activities

15. Please provide a summary of the routine activities undertaken by environmental safeguard staff during the current reporting period. This should include the work undertaken by the contractor's environmental manager, the Environmental Supervisor and any informal visits by the PIU environmental staff.

3.2 Site Audits

16. Please provide details (table form preferred) of any **formal** audits undertaken by environmental safeguard process staff during the current reporting period. This would include Contractors Environmental Manager, Environmental Supervisor, PIU Staff and ADB staff during review missions.

17. Information required includes:

- Date of Visit
- Auditors Name
- Purpose of Audit
- Summary of any Significant Findings
- Cross reference to Audit Report which should be included as an annex.

18. Summarise Findings of Audits under taken in the current period, compare with previous periods and identify any trends or common issues.

3.3 Issues Tracking (Based on Non-Conformance Notices)

19. Provide an overview and description of issues tracked during the current period.

20. Provide commentary on key statistics based on graphs and tables which can be copied from the Environmental Safeguards Issues Tracing Workbook. For example

Table 3-1 Summary of Issues Tracking Activity for Current Period

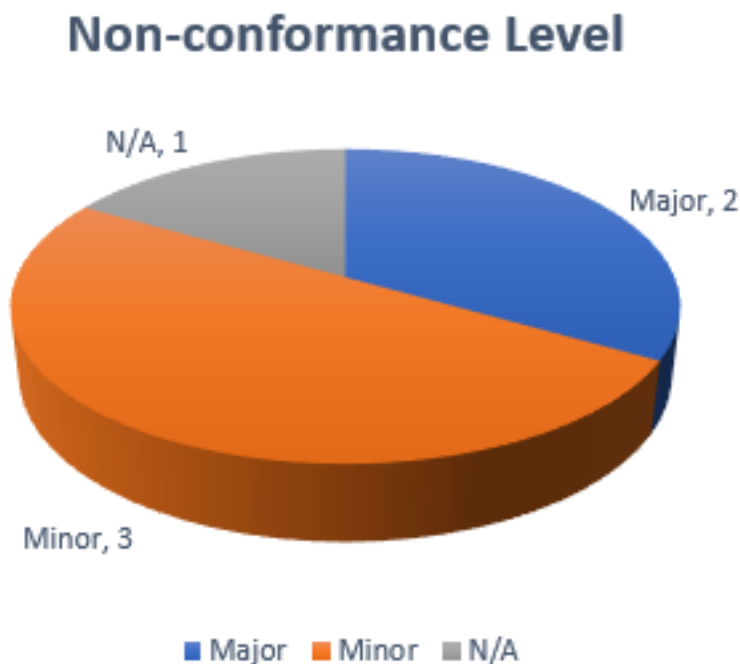
Summary Table

Total Number of Issues for Project	6
Number of Open Issues	1
Number of Closed Issues	5
Percentage Closed	17%
Issues Opened This Reporting Period	5
Issues Closed This Reporting Period	4

[Subject]

[Title]

Figure 3-1 - Summary of Issues by Non-Conformance



21. Use data from workbook as required.

3.4 Trends

22. Use information from previous period reports and the current period information to identify trends in issues. For example -

Quarterly Report No	Total No of Issues	% issues Closed	% issues closed late
1	5	87	0
2	18	56	15
3	59	23	26

23. Provide a commentary on the trends, explain why they may be occurring and in the case of negative trends explain what steps have been taken to make corrections.

24. Provide a copy of all NCN's for all major Non-Conformances in an annex. If none state this.

[Subject]

[Title]

3.5 Unanticipated Environmental Impacts or Risks

25. Document any unanticipated environmental impacts and risks which have been identified in the current period (as a reminder, these are impacts or risks which were not identified in the Impact Assessment process). State what actions were taken to mitigate the impacts and risks, were these successful.

[Subject]

[Title]

4 results of environmental monitoring

4.1 Overview of Monitoring Conducted during Current Period

26. Provide a commentary on what environmental measurements have been undertaken during the current reporting period. Highlight any areas where agreed monitoring has not taken place.

27. Include sub sections for the report on those environmental media which have been measured, for example

- Noise
- Air Quality
- Water Quality

28. The sections should present highlights of the outcomes of the monitoring focussing on a comparison of the results with the agreed standards as set out in the Specific Environmental Management Plan and/or Monitoring Plan.

29. In particular make clear where exceedances in the standards have occurred and provide reasons and actions which have been implemented to correct – refer to relevant NCN as appropriate.

30. Detailed monitoring results should be presented as an annex.

4.2 Trends

31. Based on the current and past periods of monitoring identify and discuss any trends which may be developing.

4.3 Summary of Monitoring Outcomes

32. Provide any recommendations on the need for additional monitoring, or requests for ceasing/altering monitoring if activities have been completed or monitoring is showing no significant effects over long period.

4.4 Material Resources Utilisation

4.4.1 Current Period

33. Provide values (tables, graphs etc) for current reporting period of utilisation of electricity, water and any other materials which have been include in the SEMP for monitoring.

[Subject]

[Title]

4.4.2 Cumulative Resource Utilisation

34. Provide values (tables, graphs etc) for cumulative resource utilisation of power water etc, for whole project life. Identify trends or significant changes and provide reasons for any such changes.

4.5 Waste Management

35. Provide summary of waste management activities during the current period. Provide waste contractors/s names and location of waste sites.

4.5.1 Current Period

36. Provide breakdown using graphs, table etc, of waste streams during current reporting period. This information should include

- Type of Waste (description and classification – e.g. hazardous – non-hazardous);
- Waste Source – what activity generated the waste and where;
- Quantity of waste generated;
- Treatment/disposal route – provide information on quantities of waste reused, recycled and sent to landfill or incineration; and
- Final disposal sites for waste.

37. Provide commentary on results.

4.5.2 Cumulative Waste Generation

38. Using the above bullet points for waste develop cumulative waste generation results.
39. Discuss trends and provide suggestions for waste reduction, increase in reuse and recycling if possible.

4.6 Health and Safety

4.6.1 Community Health and Safety

40. Provide information on any incidents which have occurred during the reporting period which resulted in or could have resulted in Community Health and Safety issues. Include within this section traffic accidents.

4.6.2 Worker Safety and Health

41. Provide detailed statistics on accident rates, including Lost Time Incidents, Accidents and near misses.
42. Provide information on safety campaigns conducted during the reporting period.
-

[Subject]

[Title]

4.7 Training

43. Provide information on all environmental safeguard related training activities undertaken in this period and cumulatively for project life to date. These may include specific training of environmental staff, HSE inductions of site workers etc.
44. Discuss the need for additional training and what training is planned for coming quarter.

[Subject]

[Title]

5 functioning of the SEMP

5.1 SEMP Review

45. Provide a commentary on the SEMP in terms of the ability of the contractor to implement fully the requirements set out. Highlight any areas where the contractor has not been able to implement mitigation or monitoring measures.
46. Is the SEMP effective, are mitigation measures set out still appropriate and are they working as intended – do they need changing?
47. Are there better alternative mitigation measures?
48. Can some mitigation measures be reduced or removed as the specific risk identified in the IEE/EIA and/or SEMP has not materialised?
49. Provide a table of requests for changes to the current mitigation measures for consideration by ADB. Note you can send these at any time during the project, there is no need to wait until the quarterly reporting period to be completed. If PIU has supplied requests to ADB, these should be listed along with ADB response. Where changes (additions/deletions and modifications) of mitigation or monitoring measures have been approved, the PIU shall ensure that the SEMP is updated to reflect these changes.

[Subject]

[Title]

6 good practice and opportunity for improvement

6.1 Good Practice

50. Provide an overview with charts, images etc of examples of continuing good practice for the project. State why these have been implemented and how they are reducing environmental impacts or risks.

6.2 Opportunities for Improvement

51. Identify any areas which may be outside of the formal NCN process, but which changes to construction techniques, mitigation etc would result in an improvement in environmental, health and safety performance of the project.

[Subject]

[Title]

7 summary and recommendations

7.1 Summary

52. Provide a summary of the effective implementation of Environmental Safeguards during the reporting period and for the overall project construction period to date.

7.2 Recommendations

53. Provide any recommendations for consideration by the ADB for changes to the Environmental Safeguarding process for the project.

ANNEX-IV ENVIRONMENTAL MONITORING PLAN

1	Design Phase		
1.1	Audit project bidding documents to ensure IEE/EIA and EMP is included	NTDC through project implementation unit	Prior to issue of bidding documents.
1.2	Monitor final site selection process and final alignment selection process and its environmental compliance with EMP	NTDC with the assistance of an external environmental consultant	Prior to NTDC approval of contractor's detailed alignment survey.
1.3	Review the implementation of the Land Acquisition Plan and expropriation, including considerations concerning vulnerable groups among land-owners, farmers, and farm workers	NTDC with the assistance of an external environmental consultant	Prior to NTDC approval of contractor's detailed alignment survey.
1.4	Monitor contractor's detailed project design to ensure relevant environmental mitigation measures in EMP have been included	NTDC with assistance of project implementation unit	Prior to NTDC approval of contractor's detailed alignment survey.
1.5	Monitor the thorough implementation of detailed Environmental Guidelines for Construction Works, including procurement, management, works, closing operations	NTDC with the assistance of an external environmental consultant	Prior to NTDC approval of contractor's detailed designs.
1.6	Review the management plan for mineral construction materials and waste management	NTDC with the assistance of an external environmental consultant	Prior to NTDC approval of contractor's detailed designs.
1.7	Audit detailed designs of facilities and installations to ensure standard environmental safeguards/ mitigation measures (as identified in EMP) have been included	NTDC with assistance of project implementation unit	Prior to NTDC approval of contractor's detailed designs.

1.8	Review landscape design plan, including compensatory planting	NTDC with the assistance of an external environmental consultant	Prior to NTDC approval of contractor's detailed designs.
1.9	Monitor the performance of environmental training and briefings and of the environmental awareness of project staff and NTDC	NTDC with the assistance of an external environmental consultant	Continuous throughout the entire project period.
2	Construction Phase		
2.1	Regular (monthly) monitoring and reporting (quarterly) of contractor's compliance with contractual environmental mitigation measures	NTDC with assistance of project implementation unit	Continuous throughout construction period.
2.2	Monitoring of the implementation of the Landscape Design Plan	NTDC with the assistance of an external environmental consultant	During the last phase of construction works
2.3	Commissioning phase monitoring of as built equipment versus environmental performance criteria	NTDC	At commissioning
3	Operation and Maintenance Phase		
3.1	Observations during routine maintenance inspections of facilities and transmission lines rows. Inspections will include monitoring implementation of operational mitigation measures versus environmental criteria specified in EMP, waste management and operational noise.	NTDC	As per NTDC inspection schedules
3.2	Monitoring of the implementation of the Landscape Design Plan	NTDC with the assistance of an external environmental consultant	Twice per year for three years of operation.
3.3	Monitoring decommissioning of other plant required for installation of MFF funded components and waste disposal	NTDC	During the life of the project